

product by process claim although produced by a different process. See *In re Marosi*, 710 F. 2d 799, 218 USPQ 289 (Fed. Cir. 1983) and *In re Thorpe*, 777 F. 2d 695, 227 USPQ 964 (Fed. Cir. 1985)."

Claim 52 recites "In a storage battery comprising a plurality of lead plates in a closed case, a fibrous sheet plate separator between adjacent ones of said plates, and a body of a sulfuric acid electrolyte \* \* \* the improvement wherein said separator sheets consist essentially of intermeshed \* \* \* fibers \* \* \* produced by opening bundles of the fibers, suspending the carded fibers in a gaseous medium, carding the suspended fibers and collecting the carded fibers on a foraminous material \* \* \*." Neither this claim nor dependent claim 75 is anticipated by Nelson et al. because the reference discloses "a microfine glass separator pasting paper", not one produced by opening bundles of fibers etc. Therefore, the rejection of claims 52 and 75 is proper only under 35 U.S.C. 103, and, concerning such a rejection, the *Marosi* decision says:

"Where a product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product."

There is ample evidence in the instant application to demonstrate "an unobvious difference between the claimed product" and the Nelson et al. product, where the separator is a "pasting paper" (which is made by a paper-making process). For example, the paragraph of the application which commences on page 17, line 19, describes tests which compared batteries according to the present invention (made with dry laid separator) with prior art separators (made with wet laid separator produced by a paper making process) and concludes that the tests indicated

"that drylaid separator for a given battery (according to the instant invention) should have about three-fifths the grammage of conventional wetlaid (prior art) separator for that battery." (page 18, lines 3-5)

In other words, a battery according to the invention requires only about three fifths as much separator as does the Nelson et al battery.

Figs. 5 and 6 are additional examples of the evidence in the instant application that there is "an unobvious difference between the claimed product" and the Nelson et al. product, the

difference, in this case, being properties of the separator. The method described in U.S. patent 5,336,275 was used to determine "Compression" and "rebound" thicknesses of the separator from a battery according to the invention, which is described in the paragraph commencing in line 14 of page 18 of the instant application. Of these determinations, the instant application says (page 18, lines 26 and following):

"The average results are presented graphically in Fig. 5, which is a plot of the thicknesses of the separator 18 in mm (designated A) at various applied loads in kPa and of the thicknesses in mm (designated B) after the excess above 3.79 kPa of each applied load was released. Each data point for one of the curves of Fig. 5 is indicated by "+" (this is the curve for "rebound" thickness) and each data point for the other curve is indicated by a dot (this is the curve for "Compression" thicknesses). The data plotted in Fig. 5 indicate that the separator is an outstanding material."

The application also gives comparative data concerning a commercially available wet laid separator, saying (page 19, lines 4-10):

"Compression and rebound thicknesses were determined for a commercially available separator material that is produced by a wet process using paper making equipment. The material tested is available under the trade designation HOVOSORB BG 30005, grammage 318 g.m<sup>-2</sup>. The average results of this testing are presented graphically in Fig. 6, which is a plot similar to Fig. 5, showing the data plotted in Fig. 5 and the Compression thicknesses (designated C) of the HOVOSORB BG30005 separator in mm and the Rebound thicknesses in mm (designated D) against the applied load in kPa."

Fig. 6 from the instant application, to which the foregoing quotation refers, is reproduced below:

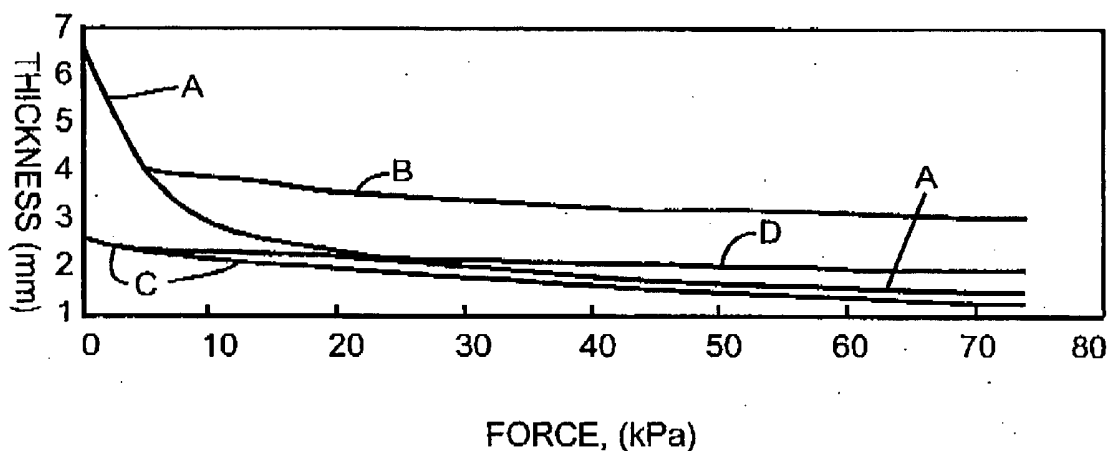


FIG. 6

It is clear from Fig. 6 that the separator of the claimed battery is an outstanding material by comparison with the wetlaid separator of the battery of the Nelson et al. reference. Accordingly, the instant application is believed to establish the unobvious difference between the product of Nelson et al. and that of claims 52 and 75 required by the *Morosi* decision. Reconsideration and withdrawal of the rejection on this reference are respectfully requested.

Claims 52-63, 77-83 and 120 are also rejected under 35 U.S.C. 103 (a) on Nelson et al. in view of O'Rell et al., U.S. patent number 4,265,985, the latter being relied upon for its disclosure of two different kinds of organic fibers, that the organic fibers are polyolefin, that the polyolefin fibers are hydrophilic, that the organic fibers are polyester, that the outer surfaces of the polyester fibers are rough, that the organic fibers are acrylic and fibrillated, that the separator is composed of organic fibers and a particulate inorganic material, that at least some of the organic fibers are bi-component fibers, and that the separator contains a particulate inorganic material suspended in the gaseous medium with glass fibers (see the Official action, paragraph bridging pages 3 and 4).

The additional disclosure of O'Rell et al. does not cure the deficiency of Nelson et al. because the former also discloses separator made by a papermaking process. Indeed, the reference includes a drawing and the following description (commencing in column 4, line 67)

"The laboratory rotoformer paper making machine used in the Examples is depicted in FIG. 1. A full size scale-up onto a Fourdrinier machine has also been carried out without difficulty in plant trials."

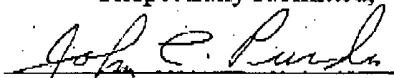
The unexpected result described above is believed to demonstrate that claims 52-63, 77-83 and 120 are patentable over Nelson et al. in view of O'Rell et al. It will be appreciated that the improved properties shown by the instant application for separator sheets which consist essentially of intermeshed \* \* \* fibers \* \* \* produced by opening bundles of the fibers, suspending the carded fibers in a gaseous medium, carding the suspended fibers and collecting the carded fibers on a foraminous material \* \* \* by comparison with separator sheets produced by a papermaking process is attributable to fiber degradation which occurs during papermaking, particularly during pulping. As the instant application explains (page 8, line 18 to page 9, line 3).

"The process of delivering a fiber to a wet process paper machine (sometimes called a "former") usually requires the baling of the fibers, opening the bales, adding the open bales into a mixer commonly referred to as a pulper, and then expending sufficient energy to disperse or break apart the fibers in the water slurry so that adequate uniformity of the fibers in the slurry is achieved. A description of the art can be found in a paper published by TAPPI Press in the 1985 Nonwoven Symposium proceedings (ISSN 0272-7269). The paper is entitled "Important Factors In Glass Web Manufacturing" (Frey, et al.). Some important issues which are discussed in the paper emphasize the value of the instant discovery. The paper states, concerning stock preparation, that the dispersion of glass microfibers is a critical step in the manufacture of glass papers. The fibers are very brittle and are easily reduced to sand if too much energy is used for dispersion. Table 1 of the paper lists pulping, pH, water temperature, stock consistency and pulping time as important variables having been named by either manufacturer's literature or papers published by the manufacturers."

The degradation is mechanical, and does not depend on the identity of the fibers. Therefore, the showing of Fig. 6 is believed to establish the unobvious difference between the prior art and the product of claims 52-63, 77-83 and 120 required by the *Morosi* decision. Reconsideration and withdrawal of their rejection on Nelson et al. in view of O'Rell et al. are respectfully requested.

Favorable action on the merits of the subject application is respectfully requested.

Respectfully submitted,

  
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